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Patitioner's Docket No. 19400/09003 (MJ0729)

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Deborah A. Schade, Kimberly L. Merkel and James W. Hansen

Application No.: 09/381,484
Filed: 02/28/2000

Group No.: 1617
Examiner: Shengjun Wang

For: Use of Docosahexaenoic Acid and Arachidonic Acid Enhancing the Growth of Preterm Infants

Commissioner for Patents
P.O. Box 1450
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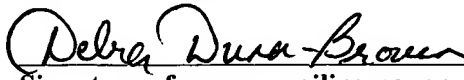
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2. Applicant's Brief on Appeal w/Appendices in triplicate (24 pages each)
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ATTORNEY DOCKET NO.: MJ0729
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Applicant: Schade, Deborah A. <i>et al.</i>)	Group Art Unit: 1617
)	
Serial No.: 09/381,484)	Examiner: Shengjun Wang
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Filed: February 28, 2000)	Deposit Account: 50-2548
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For: Use of Docosahexaenoic Acid)	
and Arachidonic Acid Enhancing)	
The Growth of Preterm Infants)	

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

On January 9, 2006, Applicant submitted its Brief on Appeal with a Petition for Extension of time for two months in accordance with 37 C.F.R. § 1.192. The Appeal Brief was due on January 12, 2005, today's date. Because the Appeal Brief was not filed in triplicate on January 9, 2005, please accept these triplicate copies of the Appeal Brief.

Respectfully requested,
NELSON MULLINS RILEY & SCARBOROUGH

1-12-06
Date

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APPLICANT'S BRIEF ON APPEAL

Dear Sir:

Applicant submits the following Brief on Appeal in accordance with 37 C.F.R. § 1.192. The Notice of Appeal was received by the USPTO on September 12, 2005, thus making the present Brief due on November 12, 2005. Applicant has filed a two-month Petition for an Extension of Time in accordance with 37 C.F.R. § 1.136(a), making the current Appeal Brief due on January 12, 2005.

1. Real Party In Interest

The real party in interest with respect to the above-captioned application and with respect to this Appeal is the assignee of the above-captioned application, Bristol-Myers Squibb Company, of Lawrenceville-Princeton Road, Princeton, New Jersey 08543-4000, U.S.A.

2. Related Appeals and Interferences

There are no related appeals or interferences known to Applicant or to Applicant's legal representative that will directly affect, be directly affected by or have a bearing on the Board's decision in the present appeal. Appendix A indicates that there are no related appeals or interferences.

3. Status of the Claims

The present application was filed on October 21, 1999. The application listed Deborah A. Schade, Kimberly L. Merkel and James W. Hansen as inventors.

Claims 1-5 and 21 are currently pending and are at issue in this appeal. Claims 6-20 and 22 have been cancelled. Claim 1 is an independent claim. A copy of the presently pending claims is attached hereto as Appendix B.

4. Status of Amendments

Subsequent to final rejection, Applicant filed amendments canceling claims 6-20 and 22. The Examiner entered these amendments in his advisory action of August 24, 2005.

5. Summary of the Invention

Broadly speaking, the invention of the above-captioned application is directed to a method for enhancing the weight gain of preterm infants through the administration of docosahexaenoic acid (DHA) and arachidonic acid (ARA) to those infants. Page 1, lines 4-6. The sole independent claim at issue is claim 1 which reads as follows:

1. A method for enhancing the weight gain of preterm infants comprising administering to said infants a weight gain enhancing amount of DHA and ARA, wherein the weight gain enhancing amount comprises DHA in an amount of at least about 10 mg/100 kcal and ARA in an amount of at least about 30 mg/100 kcal, wherein the DHA and ARA are added into nutritional products or nutritional supplements for preterm infants.

The method of the invention involves adding DHA and ARA to preterm nutritional products or preterm nutritional supplements and subsequently administering those products or supplements to preterm infants. Page 5, lines 27-30. More particularly, the invention involves supplementing the preterm nutritional product or nutritional supplement with at least about 10 mg/100 kcal DHA and at least about 30 mg/100 kcal ARA. Page 6, lines 13-23.

Long chain polyunsaturated fatty acids (LCPUFAs), specifically DHA and ARA, have been shown to be particularly important in infant nutrition due to their beneficial effects on brain and visual function. Page 1, lines 8-12. These LCPUFAs are often transferred from mother to child during pregnancy, especially during the last trimester. Unlike term infants, however, preterm infants do not fully benefit from the maternal and placental LCPUFA supply during the last trimester of pregnancy because of their early births. Page 1, lines 23-25. As such, preterm infants must depend largely on a dietary supply of LCPUFAs either through human milk or through commercially available infant formulas. Page 2, lines 2-6.

Based on the overwhelming benefits of DHA and ARA on brain and visual cortex function, supplementation of these LCPUFAs into the diets of infants in general has been recommended by worldwide nutritional regulatory organizations. Page 3, lines 17-19. Unfortunately, however, previous studies have indicated that preterm infants whose diets were supplemented with only DHA had significantly lower weight gain during the first year of life than did preterm infants whose diets were not supplemented with DHA. Page 2, lines 18-27; page 3, lines 4-12. This effect could be dangerous for preterm infants whose weight is already well below that of a healthy term infant.

The present invention overcomes this shortcoming by supplementing the LCPUFAs DHA and ARA into the diet of preterm infants. Under the method of the present invention, preterm infants receiving both dietary DHA and ARA supplementation demonstrated enhanced growth over (1) pre-term infants receiving only DHA and (2) preterm infants that received no DHA or ARA supplementation. Page 3, lines 26-28. Therefore, not only does the present invention cancel out the DHA-supplemented preterm infant lower weight gain versus those preterm infants that are fed formulas not supplemented with the LCPUFAs, but the present invention actually allows preterm infants supplemented with DHA and ARA to experience an increased growth over infants receiving no LCPUFA supplementation at all. In addition, it has also been discovered that practicing the present invention results in preterm infants “catching up” in growth in an unexpectedly short amount of time relative to a reference group of normal breast-fed infants. Page 4, lines 18-21. These important discoveries offer a substantial advantage over the prior art.

In the present invention, DHA and ARA can be supplemented into a preterm infant formula. Page 5, lines 1-2. The weight ratio of ARA:DHA can be about 1:2 to about 5:1, preferably about 1:1 to about 3:1, and more preferably about 2:1. Page 4, lines 27-30. The amount of DHA and ARA in the present invention can be from about 10 mg/100 kcal to about 50 mg/100 kcal DHA and from about 30 mg/100 kcal to about 100 mg/100 kcal ARA. Page 6, lines 13-22.

The surprising results of the present invention are demonstrated in the Examples at pages 7-25. The Examples illustrate a study in which preterm infants were divided into three groups and fed a diet of preterm formula with no DHA or ARA (group C),

preterm formula with DHA (group D), or preterm formula with DHA and ARA (group DA). Page 7, lines 19-24. Normal, term, breast-fed infants were also enrolled in the study to provide a reference. Page 7, lines 28-29. The body weight of the infants was measured at birth, 40 weeks, 48 weeks and 57 weeks of age (\pm 4 days). Page 13, lines 20-22.

The study concluded that preterm infants fed the DHA/ARA formula grew faster than infants receiving the other formulas. Page 22, lines 8-9. Not only did the DHA/ARA supplementation negate DHA's known weight-decreasing effect in preterm infants, but it also increased the weight of the supplemented infants beyond that shown in the infants whose diets were not supplemented at all. This was a surprising benefit of the supplementation, resulting in the very desirable increase in weight gain for preterm infants.

The study also provided an unexpected benefit relative to the term infant reference group. The present invention demonstrated that supplementation with DHA and ARA provided a faster "premature infant catch-up" to the weight of healthy term infants when compared to the unsupplemented and DHA-supplemented formula groups. Page 22, lines 9-10. For example, the weight achieved by the DHA-/ARA-fed group at 40 weeks of age was higher than that achieved by preterm infants receiving either formula with DHA or without DHA or ARA, but at that time, the DHA-/ARA-fed group had not fully caught up to the term infant reference group. Page 22, lines 11-13. At 57 weeks of age, however, the weight of the DHA-/ARA-fed group had fully caught up with the weight of the human milk-fed term infants, while the weights of the other preterm groups fed either DHA or no DHA or ARA remained significantly lower. Page 22, lines

14-16. These results can be seen in Tables 4 and 5 on pages 29-30 of the Application. This unexpected benefit demonstrates that DHA and ARA supplementation in preterm infants can actually enhance weight gain to the point that a preterm infant's weight is similar to that of a healthy term infant after 57 weeks of age.

6. Summary of the Issues

Only one prior art rejection remains at issue. The rejection is based on the claimed invention being obvious under 35 U.S.C. § 103(a) over Kyle et al. (U.S. Patent No. 5,374,657) in view of Crozier et al. (Crozier, G.L. et al.: "Metabolism of long chain polyunsaturated fatty acids and infant nutrition" MONATSSCHRIFT FÜR KINDERHEILKUNDE, vol. 143, no. 7 (Supp. 2), 1995, Germany, pages 95-98, XP-002073827) and Schwikhardt et al. (EP 0231904 A2).

Kyle discloses the use of DHA and ARA in infant formula in an ARA:DHA ratio of from about 3:1 to about 2:1. Kyle also teaches the importance of infants receiving adequate amounts of LCPUFAs to insure proper structural and organ development during the first year of life. But, Kyle contains no reference to preterm infants at all.

Crozier discusses the administration of DHA and ARA to preterm infants for the purpose of stimulating the growth and function of nervous tissue in the infant. Schwikhardt relates to a premature infant feed having an ARA:DHA ratio of from 3:1 to 2:1. The premature infant feed may contain between about 6.3 mg/100 kcal and 52.9 mg/100 kcal ARA and 2.6 mg/100 kcal and 26.5 mg/100 kcal DHA. The Examiner asserts that it would have been *prima facie* obvious to a person of ordinary skill in the art, at the time the claimed invention was made, to administer the infant formula of Kyle to the preterm infants of Crozier in the amounts suggested by Schweikhardt.

However, none of the cited references teach the method of the present invention. Namely, the references fail to suggest the administration of the precise combination of DHA and ARA to preterm infants to enhance weight gain in preterm infants. Therefore, it is believed that the overriding issue in this Appeal is **whether a method for enhancing the weight gain of preterm infants by administering to the infant a weight gain enhancing amount of DHA and ARA is obvious over references that not only lack such a teaching, but also teach away from the same.**

7. Grouping of the Claims

This Appeal relates to claims 1-5 and 21. For purposes of this Appeal and the specific issues on Appeal, all of the pending claims stand or fall together based on independent claim 1.

8. Arguments

In the Final Office Action, the pending claims were rejected under 35 U.S.C. § 103(a) over Kyle in view of Crozier and Schwikhardt. However, it is respectfully submitted that none of these references, including the combination thereof, teach one of ordinary skill in the art to administer the precise combination of DHA and ARA to preterm infants in a method for enhancing weight gain in preterm infants. In fact, Crozier actually teaches away from the method of the present invention. Additionally, the present invention has shown unexpected results over those results in the cited references.

- a. **A prima facie case of obviousness has not been satisfied because the combination of references fails to teach all claim limitations.**

Even if one of ordinary skill in the art were to combine Kyle, Crozier and Schwikhardt, a combination that Applicant contends is not suggested by the references

themselves, the combination would still not teach or suggest every one of the limitations in the claims of the present application. See MPEP § 2142-2143 (explaining that prior art references, when combined, must teach or suggest all the claim limitations); *In re Royka*, 180 USPQ 580 (CCPA 1974) (“All words in a claim must be considered in judging the patentability of that claim against the prior art.”). Specifically, the combination of Kyle, Crozier and Schweikhardt does not teach or suggest a method for enhancing the weight gain of preterm infants by administering to the infant a weight gain enhancing amount of DHA and ARA.

None of the cited references, or the combination thereof, teach that the administration of DHA and ARA actually enhances the weight gain of preterm infants. Weight gain is a specific parameter that is very important for preterm infants due to their weight being much lower than that of a healthy term infant of the same age. To compensate for the low birth weight of preterm infants, alternative methods for increasing their weight gain have emerged in recent years. See e.g. Field, T., Preterm Infant Massage Therapy Studies: An American Approach, *Semin. Neonatol.* 7:487-494 (2002) (concluding that massage therapy increases preterm weight gain); Dieter, J., et al., Stable Preterm Infants Gain More Weight and Sleep Less after Five Days of Massage Therapy, *J. Ped. Psych.* 28(6):403-411 (2003) (preterm infants gained more weight and slept less with just 5 days of massage). Thus, it is clear that enhancing the weight gain of preterm infants is an important objective among the medical community. In order to make the present invention obvious, the combination of references cited by the Examiner must actually teach or suggest that the administration of DHA and ARA is

known, or would be obvious, to enhance weight gain in preterm infants. This is simply not the case.

Kyle notes in its background section that it is important for infants to receive “adequate amounts of PUFAs to insure proper structural and organ development.”

Kyle, col. 1, lines 32-34. “Structural development” relates to the progression of the organic or physical makeup of the body from a simpler to a more complex form. See *The American Heritage® Dictionary of the English Language* (4th ed., Houghton Mifflin Co. 2000); *Merriam-Webster's Medical Dictionary* (Merriam-Webster, Inc. 2002).

“Organ development” similarly refers to the progression of the individual organs of the body from a simpler to a more complex, adult form. *Id.* Neither structural nor organ development suggests weight gain. Additionally, because Kyle’s teachings do not relate to preterm infants, enhancement of weight gain would not be an important goal for Kyle because term infants typically gain weight at normal rates. Thus, Kyle’s teaching in this regard would not lead one of ordinary skill in the art to administer DHA and ARA to preterm infants for the purpose of enhancing their weight gain.

Similarly, Crozier does not teach that DHA and ARA are beneficial in enhancing weight gain. In the introduction of the article, Crozier specifically states that nutritional fatty acids contribute to the growth and function of nervous tissue in infants. Crozier, 143(7):95. The Examiner cites Crozier’s summary on page 96 in which Crozier points out that DHA and ARA “are necessary for proper growth and development”. The Examiner overlooks the remainder of the summary, however, in which Crozier discusses the importance of LCPUFAs in “visual acuity and intelligence quotient.” The remainder of the article echoes the same focus: “[b]oth docosahexaenoic and

arachidonic acids are important in brain growth.” Crozier, 143(7):96. Similarly, “[b]reast feeding has an effect on maturation of visual acuity. . . . Measures of intellectual development have also been demonstrably different between breast and formula fed preterm infants. . . . [T]he breastfed group scored significantly higher intelligence quotients.” Crozier, 143(7):97.

Therefore, when viewed as a whole, it is clear that for Crozier, “proper growth and development” means proper growth and development of the brain and nervous tissue. Preterm infants’ proper brain growth, accelerated maturation of visual acuity, and improved intellectual development are the benefits that the authors of Crozier found when DHA and ARA were added to infant formula. The reference does not suggest that DHA or ARA would enhance the weight gain of preterm infants.

Lastly, Schwikhardt relates to a premature infant feed having an ARA:DHA ratio of from 3:1 to 2:1. The premature infant feed may contain between about 6.3 mg/100 kcal and 52.9 mg/100 kcal ARA and 2.6 mg/100 kcal and 26.5 mg/100 kcal DHA. Schwikhardt does not suggest that this combination of DHA and ARA will have any particular benefit on the infants. The reference merely relates to the composition itself and the relative amounts of DHA and ARA.

The combination of Kyle, Crozier and Schwikhardt simply does not teach or suggest that DHA and ARA, as used in the method of the present invention, can enhance the weight gain of preterm infants. Kyle does teach that LCPUFAs can help insure proper structural and organ development, but Kyle is completely lacking in a teaching of weight gain. Crozier teaches the importance of DHA and ARA in enhancing brain growth, but it does not suggest that DHA and ARA will enhance weight gain.

Schwikhardt does not contain a teaching regarding any benefit of DHA and ARA. Because none of the individual references suggests that DHA and ARA enhance weight gain in preterm infants, the combination of these references cannot possibly suggest that DHA and ARA can improve weight gain in preterm infants. There is simply no teaching or suggestion in any reference that DHA and ARA can be used to enhance weight gain. Because the combination of references does not teach each and every limitation of the claims, a *prima facie* case of obviousness has not been made out.

b. A *prima facie* case of obviousness has not been satisfied because there is no suggestion to combine or modify the references.

A significant factor cutting against a finding of motivation to combine or modify the prior art is when the prior art teaches away from the claimed invention. A reference teaches away “when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *In re Gurley*, 27 F.3d 551, 31 USPQ 2d 1130, 1131 (Fed. Cir. 1994). If the reference suggests that “the line of development flowing from the reference’s disclosure is unlikely to be productive of the result sought by the applicant,” the reference teaches away. *Id.* Obviousness cannot be found if the references teach away from their combination or from the invention itself.

Here, Crozier teaches away from the present invention. Significantly, Crozier cites a study in which DHA from fish oil was administered to preterm infants and the “growth” and “weight gain” of the infants was “significantly depressed.” Crozier, 143(7):96 (quoting Carlson, S.E., et al., *Long Term Feeding of Formulas High in Linolenic Acid and Marine Oil to Very Low Birth Weight Infants: Phospholipid Fatty Acids*, *Pediatr. Res.* 30:404-412 (1991) (emphasis added). While Crozier does suggest

supplementing DHA and ARA into the diets of preterm infants, it is for the purpose of improving brain and nervous system function and not for the purpose of enhancing weight gain. In fact, if the teachings of Crozier are followed, weight gain would actually be decreased and not increased as claimed by the present claims.

Because Crozier teaches that DHA depresses weight gain in preterm infants and that ARA should be added to preterm diets for a purpose other than for enhancing weight gain of preterm infants (i.e. for the purpose of improving brain and tissue function), a person of ordinary skill would be discouraged from looking to Crozier to find the present invention. The person of ordinary skill in the art would not be led to administer DHA and ARA to preterm infants to enhance their weight gain. As such, Crozier teaches away from the claims of the present invention. Such a teaching must be considered as evidence of non-obviousness because a prior art reference must be considered in its entirety, including portions that would lead away from Applicant's claimed invention. *W.L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 1550-51, 220 USPQ 303, 311 (Fed. Cir. 1983). When the teaching of Crozier is considered as a whole, including its teaching away, there is no motivation to combine it with Kyle or Schwikhardt. Therefore, the Examiner has not satisfied a *prima facie* case of obviousness.

c. **Even if a *prima facie* case of obviousness has been satisfied, Applicant has provided substantial evidence of unexpected results.**

Crozier is not the only reference pre-dating the present application that teaches that DHA lowers the weight gain of preterm infants. In fact, this was the general consensus among those of ordinary skill in the art at the time of the filing of the present application. For example, Carlson *et al.* authored a 1996 study that demonstrated a

depression in weight gain for those infants fed a DHA-supplemented formula. Carlson, *et al.*, *Effect of Long-Chain n-3 Fatty Acid Supplementation of Visual Acuity and Growth of Preterm Infants with and without Bronchiopulmonary Dysplasia*, Am. J. Clin. Nutr. 63:687-97 (1996). In that study, absolute growth measurements showed that DHA-supplemented preterm infant weight was significantly less than the weight of standard formula-fed preterms at 2, 9 and 12 months of age. *Id.* at 692. The absolute growth measurements are shown in Table 6, on page 694 of the article. Carlson also notes that “[i]n the only other trial designed to study the effects of n-3 LCFA supplementation on growth, supplemented infants grew less well than infants fed commercially available formulas.” *Id.* (citing Carlson, *et al.*, *First Year Supplemented Growth of Preterm Infants Fed Standard Compared to Marine Oil n-3 Supplemented Formula*, Lipids 27:901-07 (1992)). This illustrates that, at the time of the invention, persons of ordinary skill believed that DHA supplementation would depress weight gain in preterm infants. Such general skepticism in the art is relevant and persuasive evidence of nonobviousness. *Gillette Co. v. S.C. Johnson & Son, Inc.*, 919 F.2d 720, 726, 16 USPQ 2d 1923, 1929 (Fed. Cir. 1990).

Based on the teaching away in Crozier as well as the general skepticism in the art that weight gain would be decreased by feeding DHA, any increase in weight gain due to DHA and ARA supplementation would be unexpected. The present invention demonstrates that not only does DHA and ARA supplementation negate DHA's weight depressing effect, but it also enhances the weight gain of preterm infants beyond that which is shown in unsupplemented preterm infants. These results would clearly have

been unexpected and surprising to one of ordinary skill in the art at the time of the invention.

If a claimed invention “exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected” the invention itself is not obvious. *In re Soni*, 54 F.3d 746, 34 USPQ 940, 941-42 (Fed. Cir. 1995). Applicant not only states that the results obtained in the present invention were surprising and unexpected, based on the knowledge within the art (page 4, lines 7-21), but also supports that assertion with specific data demonstrating the improved results using the method of the present invention (pages 20-81). “Where an applicant demonstrates substantially improved results . . . and states that the results were unexpected, this should suffice to establish unexpected results in the absence of evidence to the contrary.” *Id.* at 1688.

Applicant specifically illustrates the surprising results of the invention in the Final Study Report. Under the heading Study Objective and Statistical Analysis, on pages 20-21, Applicant reports the goals of the invention as follows:

The primary objective of this study was to establish the safety of feeding D [DHA-enriched formula] or DA [DHA- & ARA-enriched formula] to preterm infants during the initial hospitalization as measured 1) by growth, acceptance and tolerance while consuming the formula for at least 1 month and 2) by close monitoring and observation for a 4 to 5 month follow-up period (4-5 times the treatment period) while consuming unsupplemented routine term infant formula. The primary growth parameter selected was weight with evaluation of the proposition that weight on test formula was greater than or equal to weight on control formula. (Emphasis added).

Further, at page 22, lines 8-16 of the Application, Applicant reports the results as follows:

Post-hoc analysis reveals that infants on DA [DHA & ARA-enhanced formula] grew faster than infants receiving C [control formula] and D [DHA-enhanced formula] (See table 5 and figure 1). This enhanced growth provided faster “premature infant catch-up” compared to C and D. Weight achieved by the DA group (3198 g) was higher than C (3075 g) and D (3051 g) at 40 weeks post-conceptual age but had not fully caught up to the term weight (3438 g) of group H [breast-fed term infants] (See table 4 and figure 2). This catch up trend continued through 48 to 57 weeks by which time the mean weight of group DA did not differ from group H while groups C and D remained significantly lower.

Additional support for the unexpected results can be found in Table 3 (page 28 of the Application), which shows the actual mean weight gains for the three groups of preterm infants, with weight gains of 30.7 grams/day (g/d) for the Control group, 33.3 g/d for the DHA group and 34.7 g/d for the DHA+ARA group. This raw data shows that the actual weight gain for the DHA- and ARA-supplemented preterm infants was greater than for the DHA-only group or the unsupplemented group. Table 5 also clearly demonstrates a significant difference in weight gain between the control and DHA+ARA fed groups. This is also illustrated in Figure 1 of the Application, which is a graphical representation of the weight gain results between the DHA+ARA and Control groups.

The results of this testing shows that the invention not only cancels the Crozier weight gain drop, but also increases the weight gain to such an extent that preterm infants receiving DHA- and ARA-enhanced formula have, at 57 weeks post-conceptual age, approximately the same weight as term infants that have been continuously breast-fed since birth. These are clearly surprising results that were unknown and quite unexpected prior to the present invention. Without these results, a person of ordinary skill in the art would have found no

motivation to administer DHA and ARA to preterm infants to achieve an enhanced weight gain. As such, that which would have been surprising to a person of ordinary skill in the art could not have been obvious. See *In re Mayne*, 104 F.3d 1339; 41 USPQ 2d 1451 (Fed. Cir. 1997).

d. **Applicant has satisfied the requirements regarding establishment of unexpected results**

In the Final Office Action, the Examiner stated that, regarding the establishment of unexpected results, it is Applicant's burden to explain any proffered data and establish how any results therein should be taken to be unexpected and significant. The Examiner additionally pointed out that the claims must be commensurate in scope with the showing of unexpected results in this Application. Lastly, the Examiner asserted that Applicant must compare the claimed subject matter with the closest prior art in order to be effective in rebutting a *prima facie* case of obviousness.

Applicant has satisfied its burden to explain the data and establish how the results should be taken to be unexpected and significant through the discussion above.

The only independent claim of the present invention is as follows:

1. A method for enhancing the weight gain of preterm infants comprising administering to said infants a weight gain enhancing amount of DHA and ARA, wherein the weight gain enhancing amount comprises DHA in an amount of at least about 10 mg/100 kcal and ARA in an amount of at least about 30 mg/100 kcal, wherein the DHA and ARA are added into nutritional products or nutritional supplements for preterm infants.

Applicant's unexpected results occur over the entire claimed range. Specifically, DHA and ARA were added into nutritional products and administered to preterm infants in the amounts recited. Results of the study demonstrated an enhanced weight gain in

preterm infants fed the DHA- and ARA-enriched product. The claims are commensurate in scope with the showing of unexpected results.

Lastly, Applicant compared the results of its study with those results in Crozier, which is the closest prior art. Crozier taught that DHA depressed weight gain in preterm infants. Neither Crozier nor any other reference discloses any range of enhanced weight gain due to DHA and ARA supplementation. Thus, the present invention provides an unexpected result in kind, not merely in degree. Thus, Applicant has satisfied its burden in explaining the data, has provided claims that are commensurate in scope with the unexpected results, and has effectively compared its showing of unexpected results with that of the closest prior art.

e. Applicant's claimed invention is not inherently obvious

The Examiner asserts that Applicant has merely recognized another advantage which would flow naturally from following the suggestion of the prior art. *Ex parte Obiaya*, 227 USPQ 58, 60 (BPAI 1985). The Examiner additionally cites *In re Swinehart*, 169 USPQ 226, 229 (CCPA 1971), for the proposition that it "is elementary that the mere recitation of a newly discovered function or property, inherently possessed by the thing in the prior art, does not cause a claim drawn to those things to distinguish it over the prior art."

The Examiner seems to be asserting that because the composition was known in the prior art, the fact that the composition could enhance the weight gain of preterm infants was merely an inherent property. The Examiner's argument, however, is misplaced. Each of the cases that the Examiner cites deals with product or composition claims. While it is true that the discovery of a

new property or use of a previously known composition does not impart patentability to the composition, the same is not true for method claims.

A newly discovered use of something that was already known is patentable as a method of use. 35 U.S.C. § 101 (2005) ("Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor."). The present invention claims a new use of a composition, not the composition itself. That use is the use for enhancing weight gain in a preterm infant. As such, an inherency argument cannot apply.

Even if this Board finds that inherency arguments can be maintained in reference to new process or method claims, an inherency argument should not be maintained in connection with an obviousness rejection. "The inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. Obviousness cannot be predicated on that which is unknown." *In re Shetty*, 566 F.2d 81, 195 USPQ 753 (CCPA 1977) (citing *In re Adams*, 356 F.2d 998, 148 USPQ 742 (CCPA 1966)); *see also* MPEP § 2141.02(V); *In re Spormann*, 363 F.2d 444, 448, 150 USPQ 449, 452 (CCPA 1966); *In re Rijckaert*, 9 F.2d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993). In the present case, the ability of DHA and ARA to increase the weight gain in preterm infants was an unknown advantage. If the advantage was unknown among those skilled in the art, it follows that it cannot also be obvious.

Hindsight reconstruction of an invention is prohibited in obviousness analyses. Inherency, however, is directly related to hindsight reconstruction.

Inherency, by definition, is a recognition today that an invention was present in the prior art, even though it was not understood to be there at the time. Burk, *et al.*, *Inherency*, 47 Wm. & Mary L. Rev. 371 (2005). Given the hindsight limitations on obviousness, obviousness rejections based on inherency are improper. A retrospective view of inherency cannot be a substitute for some teaching or suggestion supporting an obviousness rejection. *In re Rijckaert*, 9 F.2d at 1533 (citing *In re Newell*, 891 F.2d 899, 13 USPQ2d 1248, 1250 (Fed. Cir. 1989)). Hindsight recognition that DHA and ARA could “inherently” be used to increase the weight gain in preterm infants cannot now be used to establish that the invention was obvious.

In addition, it has been held that obviousness arguments based on “inherent” properties cannot stand when there is no supporting teaching in the prior art. *In re Rijckarert*, 9 F.2d at 1533 (citing *In re Yates*, 663 F.2d 1054, 211 USPQ 1149, 1151 (CCPA 1981)). “When the PTO asserts that there is an explicit or implicit teaching or suggestion in the prior art, it must indicate where such a teaching or suggestion appears in the reference.” *Id.* The Examiner has failed to show a reasonable expectation, or even some predictability, that DHA and ARA would be effective in enhancing the weight gain of preterm infants. Because there is absolutely no suggestion in the prior art that the composition would be useful for the particular purpose of enhancing the weight gain of preterm infants, this cannot be considered to be merely an inherent property of the composition. “[Inherency] is quite immaterial if, as the record establishes here, one of ordinary skill in the art would not appreciate or recognize that inherent result.” *In re*

Shetty, 566 F.2d at 86 (citing *In re Naylor*, 369 F.2d 765, 768, 152 USPQ 106, 108 (CCPA 1966)).

9. Summary

The present invention discloses a method for enhancing the weight gain of preterm infants through the administration of DHA and ARA to those infants. None of Kyle, Crozier, or Schwikhardt suggest the use of DHA and ARA for this purpose. In addition, these references do not provide motivation for combining their teachings and, combined or considered individually, actually teach away from the claims of the present invention. Thus, it is respectfully requested that Applicant's Appeal be granted and a patent issue based on the above-captioned application.

Please charge any additional fees required by this Appeal Brief to Deposit

Account No. 50-2548.

Respectfully requested,

NELSON MULLINS RILEY & SCARBOROUGH

1-12-06
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Appendix A
Related Appeals and Interferences

None.

Appendix B

Currently Pending Claims

Claim 1. A method for enhancing the weight gain of preterm infants comprising administering to said infants a weight gain enhancing amount of DHA and ARA, wherein the weight gain enhancing amount comprises DHA in an amount of at least about 10 mg/100 kcal and ARA in an amount of at least about 30 mg/100 kcal, wherein the DHA and ARA are added into nutritional products or nutritional supplements for preterm infants.

Claim 2. The method of Claim 1 wherein the DHA and ARA are supplemented into preterm infant formula.

Claim 3. The method of Claim 1 wherein the ratio of ARA:DHA is 1:2 to 5:1.

Claim 4. The method of Claim 1 wherein the ratio of ARA:DHA is 1:1 to 3:1.

Claim 5. The method of Claim 1 wherein the ratio of ARA:DHA is about 2:1.

Claims 6-20. (Canceled)

Claim 21. The method according to Claim 1 wherein the weight gain enhancing amount comprises DHA in an amount of from about 10 mg/100 kcal to about 50 mg/100 kcal and ARA in an amount of from about 30 mg/100 kcal to about 100 mg/100 kcal.

Claim 22. (Canceled)

Appendix C
Evidence Appendix

None.